Preliminary Research on the Social Attitudes toward AI’s Involvement in Christian Education in Vietnam: Promoting AI Technology for Religious Education

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Abstract: Artificial intelligence innovations, such as chatbots and specialized education suggestion tools, provide potential interactive and on-demand pedagogical engagement between non-Christians and Christians with Christianity. However, there is little empirical research on the readiness, acceptance, and adoption of religious education involvement of AI in a secular state such as Vietnam. This research addresses the literature gap by providing an entrepreneurial analysis and customer perspectives on the ideas of AI involvement in religious education. Specifically, the study explores whether the Vietnamese across different ages accept and have enough skills to adopt AI in Christian education innovation. The interview sample is 32 participants, selected based on their religious orientation (Christians and non-Christians) and age (Generation X, Generation Y, and Generation Z). Most respondents are open to AI application in religious education except for Church personnel. However, only Generation Z are fully prepared to adopt this innovation. Theoretically, the research customizes the Unified Theory of Acceptance and Use of Technology model into religious innovation context. Practically, this research acts as market research on the demand for AI’s religious innovation in Vietnam, an insight for future religious tech entrepreneurs.

Keywords: age; artificial intelligence; Christianity; religion; religious orientation; unified theory of acceptance and use of technology

1. Introduction

From the industrial and entrepreneurial perspective, the application of technological advancements, especially artificial intelligence (AI), has proliferated. Autonomous vehicles, playing games, virtual assistants, and search engines are some epitomes of AI in real life. AI has progressed to the point where it plays a crucial role in virtually every sector of today’s modern world (Pedreschi and Miliou 2020). The economic sectors and the education industry are reaping the benefits of the AI trend. To provide better services to learners, mainstream education from primary, secondary to higher educational institutions has increasingly shifted to AI usage. AI-based assistants save time and effort in educational administration by processing student details, stimulating finance management, and handling grading. With user customization, an education system powered by AI has personalized the learning experience. They can get access to studying guidelines that are designed suitably for their own needs. Students also no longer need to request hard copy textbooks, but they can use portable paperless materials (Knox 2020; Holmes et al. 2019). According to Global Market Insight, AI in Education (AIED) was worth over 400 million USD in 2017 and will grow at a Compounded Annual Growth rate of more than 45% from 2018 to 2024 (Bhutani and Wadhwani 2018). These practical applications of AIED and statistically significant growth of this sector provide ample opportunities for business development and innovation.
From the academic perspective, AI has significantly impacted aspects from private to social and political lives (Pedreschi and Miliou 2020), hence widespread attention from scholars. On the one hand, many studies related to the economy highlight AI’s importance in facilitating innovation, improving productivity, output, and the labor demand. On the other hand, other research focuses on increasing unemployment rate, surveillance, and encoded and systemic biases (Clifton et al. 2020). AI technology’s development is believed to lead humans to come to an important crossroads: AI can generate or destroy jobs; give citizens more control or deprive them of their autonomy and privacy; promote a digitally interconnected world or inflict on people a systemic failure risk. In terms of the impacts of AI application on religion, disputes also exist. Some papers speculate that machines with state-of-the-art AI have the potential to become objects of worship (Midson 2018; Geraci 2013). This is because if AI can conduct medical surgeons to cure fatal or chronic diseases, understand human behaviors to provide timely services, and perform other activities to satisfy people’s needs, there arises a religious movement that idolizes and worships AI. One example is Anthony Levandowski’s Way of the Future Church, which claimed the spotlights from multiple media channels (Leswing and Oreskovic 2019).

By contrast, how humans apply AI to reinforce orthodox religions is still insufficiently researched. For example, the research on AIED on religions concentrates on European and Islamic theology, creating a regional and cultural bias in AIED analysis. Moreover, global citizens have increasingly familiarized themselves with the digitally driven world. However, as the spread of religious information has hitherto entirely depended on vicars and priests’ preaching, religious education is still unpopular among people. A considerable quantity of research indicates that using AI in this process can promote the awareness of religion among the congregation and give agnostics more insights (Syarif 2020; Alemi et al. 2020). However, there is currently no research on which factors influence the technological readiness, acceptance, and adoption of potential users in the AIED context (Midson 2018). These literature gaps and economic incentives motivate the researchers to investigate AIED in the context of Vietnam—a developing and secular country.

In this paper, the authors will explore the level of readiness, acceptance, and adoption to use AI-integrated technologies in religious practices in Vietnam. The authors chose Christianity as the religion researched because of three reasons. Firstly, unlike Buddhism or Cao Dai, Christian education is mandatory for its followers. Moreover, in many places in Vietnam, people following other religions are asked to learn Christianity if they wish to marry Christian followers. Therefore, those groups of people are more motivated to learn about AI solutions. Secondly, as one of the core purposes of this paper is to incentivize entrepreneurs to take initiatives for AI in religious education, preference is put on religions having the most adherents. According to Hackett (2019), Christianity continues to be and is expected to remain the world’s largest religion by population, hence, Christianity creates a potential and profitable market for entrepreneurs compared to other religions. Finally, the application of AI in Christian education has not appeared in Vietnam and has not appeared in many studies in the world.

This research aims to serve technological service providers interested in building AI-driven devices such as applications, websites, or chatbots. Besides, church leaders, missionaries, and people responsible for teaching religions or spreading the gospel also benefit from this research. When they are acknowledged with regard to the extent to which Christians and non-Christians accept and are willing to use these technologies, they will come up with measures to utilize this approach effectively. Since there is no formal scale to measure the readiness, acceptance, and adoption of people towards AI involvement in religious education, this interpretive research contextualized Unified Theory of Acceptance and Use of Technology (UTAUT)’s constructs into the religious education industry, hoping to make the first step into understanding the adoption of AI in Christian education. Additionally, this research explores whether age generation and religious orientation have effects on potential users’ decisions.
2. Literature Review

2.1. The Roles, Benefits, and Challenges of Implementing Artificial Intelligence in Education

Firstly, the research will present the roles, benefits, and challenges of implementing Artificial Intelligence in Education (AIED) based on the previous literature, highlighting the rationale behind this research and the expected contribution to the AI and education field. Normally, an ‘intelligent’ system can ‘learn’ from the data to formulate new knowledge and actions. AI is the ability of a digital computer or computer-controlled robot to perform tasks commonly associated with intelligent beings. This technology employs a statistical-analytic (algorithmic) method to harvest, structure, and analyze data sets computationally to spot trends, patterns for making predictions and decisions (Berendt et al. 2020). According to computational theory, the social, psychological, and behavioral data allows the AI system to make more informed decisions about individuals and new education cases. AIED’s application and benefits are highlighted based on theoretical research and practical business solutions.

Based on theoretical research, AI’s benefits in education are summarized in more personalized, flexible, inclusive, and engaging learning (Berendt et al. 2020). In personalized and flexible learning, many AI researchers collect learners’ choice and behavioral data to enhance learning experiences. These examples are Intelligent Tutoring (Roll et al. 2018), predicting each student’s grades to help teachers develop remedial actions or tailor career opportunities based on academic performance (Berendt et al. 2017). Regarding flexibility and inclusivity, Ossiannilsson (2019) believes that it is not a challenge to find high-quality courses to learn in the era of the massive open online courses (MOOC); the challenges are in how to navigate between the abundance of similar courses. The author suggests AI as a solution because it can tailor learners’ own goals and flex their course designs to align with learners’ personal goals.

From a practical perspective, according to the Center for Curriculum Redesign, a US-based non-profit global organization dedicated to research on how technology can impact education in the 21st century, the AIED applications can be categorized into (1) personalized education applications, (2) student writing analysis applications, (3) educational chatbots, and (4) AI-facilitated student/tutor matching system (Holmes et al. 2019). These educational practices have been successfully employed worldwide, promoting an interactive and cross-cultural education. In primary and high school education, for example, the AI Class Director’s system can pair primary school children with teachers from English-speaking countries based on trained data from live video feeds and voice recordings. Another application is Squirrel AI’s adaptive learning system using data on students’ academic strengths and weaknesses to calculate personalized pathways (Knox 2020). AI is also used in specialized and higher educational training, such as medical training and legal training. For example, thanks to technological advancement and affordability, nurse education is incorporating clinical simulation education, based on AI and virtual reality (VR), into their daily education practices (Rourke 2020; Foronda et al. 2020). In the current publication, Chen et al. (2020) also summarized AI’s practicality and roles, re-illustrating the wide range of applications that AI can give to education. For instance, they categorized AI’s benefits into three areas, namely, Administration, Instruction, and Learning.

However, along with the benefits that AI brings to education, scholars also spot multiple challenges in implementing this technology innovation into education. On the technical side, the problems revolve around how to collect and train the data in multiple academic disciplines (Chen et al. 2020). This is because AI typically demands big data to learn and function efficiently (Berendt et al. 2020; Barocas and Selbst 2016). On the learners’ and users’ side, without the well-rounded representation of learners across different backgrounds, big data’s disparate impact can make AI’s conclusions discriminate against under-represented learners (Barocas and Selbst 2016). For example, if only wealthy students are using AI applications, machine learning will suffer bias into costly educational solutions, such as buying more premium educational courses and hiring well-matched tutors. These solutions are not suitable for underprivileged students. The second problem is related to
technological adoption. The lack of general knowledge to utilize AI innovation across disciplines has been highlighted as key factors across recent research (Chen et al. 2020). These technological and user-related challenges are actually interconnected. Without users’ readiness to adopt AI’s innovation across different backgrounds, there will be no data for researchers to train AI and prevent data bias. Because of these challenges, our research concentrates on the technological readiness, acceptance, and adoption of Vietnamese Christians and non-Christians across different generations. With a well-rounded background of participants, the research can help entrepreneurs effectively develop their Minimum Vital Product (MVP) in religious education.

2.2. The Application of Technological Advancement and Artificial Intelligence in Religious Education

Teaching religion using technology is an emerging topic in religious and technology research that demands more attention for multiple reasons. Firstly, the harmony between religion and technology can ensure the parallel goals of cultural enrichment and economic development in a society. According to Sumarni et al. (2020), the lack of technological and religious education combination has increasingly separated religious and cultural sciences from science. The separation between science and religion leads to a perception of religion and science as two independent fields that cannot be united. This mindset is harmful to religious countries, such as Indonesia, in fostering economic innovation and conserving cultural heritage. Secondly, research also finds positive impacts of technology in religious teaching, stimulating both classroom and beyond classroom education. In 2018, Hilton (2018) collected and edited a series of articles on teaching religion using technology. The book employs a case study analysis to search for insights on how technology can improve student performances in religion classes at a higher education level. Its investigations include the application of Massive Online Open Seminars in Religion, the role of Social Media, and Characterizing Gameful Learning (Hilton 2018). However, there is no in-depth paper that investigates the roles of AI in religious education.

The application of AI in religious education is currently under-researched. Nevertheless, early research also finds positive impacts of AI in religious teaching. Alemi et al. (2020) observed a high acceptance rate of the social robots among participating students, greater participant attention, and excitement levels in the Islamic religion courses. Based on quasi-experimental research, Syarif (2020) also found that e-learning platforms can effectively enhance students’ positive attitudes toward Islamic values. The e-learning platform with a specialized education system is also an effective solution to teaching Islamic values in locations that are lacking physical Islamic teachers. However, many literature gaps in this topic need addressing. Most of the research in technological adoption and religious studies remains on Islamic regions and Islamic countries, and Westerners’ theology. Since each religion has different approaches to technology adoption and a country’s religious culture can further influence learners’ motivation in religious learning, there is a lack of diversity in religion and a lack of cultural-political representation. This literature gap motivates the researchers to consider Christianity as a controlled religious factor and to choose Vietnam (a secular country) as a research context.

2.3. Unified Theory of Acceptance and Use of Technology (UTAUT)

Although there are other models of technology acceptance, the theoretical framework of this research is the UTAUT. The UTAUT was developed by Venkatesh et al. after they identified four key factors, namely, (1) performance expectancy, (2) effort expectancy, (3) social influence, (4) facilitating conditions, and user acceptance of technology innovation. According to (Venkatesh et al. 2003), Performance Expectancy (PE) illustrates how the individual believes using technology will improve their performance. Effort Expectancy (EE) signifies the level of ease for individuals to operate the technical application. As the ease of technology increases, the users will increase their adoption rates. Social Influence (SI) examines how users’ relatives and his communities can influence their new technological innovation adoption rate. Finally, Facilitating Conditions (FC) investigates how the avail-
ability of technical infrastructure and technical support can influence users’ adoption rates. The benefits of UTAUT for technology adoption are comprehensiveness. It investigates different technology adoption dimensions for analyzing product design, customers’ demand and capacity, influential social factors, and physical infrastructure. This information guides developers to tailor their products and services to fit their customer demand and capacity and accept their market.

Much empirical research has based on and recommended the UTAUT model to investigate the technological readiness and acceptability of new technologies across disciplines, such as healthcare, banking, entrepreneurial innovation. (Oppong et al. 2020; Renaud and Biljon 2008; Zhou et al. 2010). UTAUT has also been vastly used when examining user acceptance of different technologies, ranging from smart grids IoT, mobile devices, blockchain technology, and others (Radenkovic et al. 2020; Lin and Kim 2016). The application of the UTAUT model is also seen in religious technology adoption research. For example, (Rami 2020) employs UTAUT and performs partial least square structural equation modeling (PLS-SEM) to find the relationship between internet users’ religiosity on social media and technology adoption in Saudi Arabia (Rami 2020). Syed Ali Raza is also based on UTAUT to analyze mobile banking acceptance in Islamic banks (Raza et al. 2019). Since the model has high predictability of technological user’s behavioral intention and can explain technology acceptance for new technological innovation in the religious and educational context, we have adapted UTAUT to examine the AI acceptance of religious education under four factors: performance expectancy, effort expectancy, social influence, facilitating conditions (Rahman et al. 2017; Huang and Kao 2015).

UTAUT also highlights four moderator variables: (1) age, (2) experience, (3) gender, and (4) voluntariness of use, which have been empirically proven to moderate the intensity of technology adoption. To ensure the research’s specificity and concentration, the researchers only examine age as a moderator variable. This research concentrates on three age groups: Generation X (Gen X), Generation Y (Gen Y), and Generation Z (Gen Z). According to Pew Research Center—an American think tank expertise on demographic research, Gen X were born between the early 1965s and 1980; Gen Y were born between 1981 and 1996; Gen Z were born between 1997 and 2012 (Dimock 2019). Empirical research has illustrated that each generational group has different motivations underlying technology behaviors. Research also shows that each generational group has different patterns regarding the usage and engagement with technology. For example, (Calvo-Porral and Pesqueira-Sanchez 2019) find that Gen X is driven by information search and utilitarian purposes. On the other hand, Gen Y normally engages with technologies for hedonic and entertainment purposes. Data presented by Roblek et al. (2019) indicate that functional value, fun value, and value for money play a crucial role in Gen Z’s technological adoption. Precedent research also points out that the ability to adapt and master new technology simultaneously better in subsequent generations than their former counterparts from the silent generation up to the current Gen Z (Vogels 2019). However, there is a lack of qualitative research on Generation X, Y, and Z’s motivations and usage patterns of technology in religious education applications. This motivates the researchers to choose age as a moderating variable in this research.

3. Methodology
3.1. Research Setting

Vietnam is a developing country in the South East Asia region. According to religious scholars and anthropologists, Vietnam is deeply influenced by native religions, namely, the worship of mother goddesses, Buddhism, and Chinese Confucianism. These religious values have been incorporated significantly into Vietnamese cultures, such as the Vietnamese social rules, artistic expressions, and moral values. Even during the Communist regime, Vietnamese Marxist thought is not atheist; hence, they still value these religions as an indispensable part of Vietnamese culture. However, unlike other religions, Christianity has faced the government’s discrimination policies because many politicians utilized religious
claims for political purposes, which are against the political stability of the Communist party. The tension was relieved significantly in 1990. Under Resolution No. 24 of Politburo, the Vietnamese Communist party recognized religious freedoms for Christianity and more than forty religions (Nguyen et al. 2020). Although the government still has a strict policy to prevent political actions based on religious causes, religious freedom in the general public sees many positive developments, such as the re-opening of religious publishers, religious conversion rights, and so on (Liên 2013). With the freedom to learn and teach Christianity practices, Vietnam is a potential market for implementing AI in Christianity education and other religions’ education.

Currently, Vietnam has over 90 million citizens, with 10% practicing Catholics and Protestants. After resolution no. 24 from 1990, Vietnam adopted freedom of religion, allowing the ease to convert from one religion into Christianity (Nguyen et al. 2020). Secondly, in Vietnamese culture, multiple studies have illustrated that religious values play a crucial role in parenting practices and values. This cultural influence is not limited to Christianity but all other religions in Vietnam; hence, children tend to share the same religious values and orientation as their parents (Mestechkina et al. 2014). Thirdly, according to DataReportal—Global Digital Insights, over 70% of Vietnamese citizens are internet users, with the country ranked 79th out of 200 countries. The high internet access rate illustrates the opportunity and availability to access the internet and AI innovations. From the top-down point of view, it highlights the general population’s technological readiness, which might underestimate the real generation gap in technological readiness and adoption according to the Unified Theory of Acceptance and Use of Technology (McDonough 2016). Finally, although there are not any comprehensive scientific studies on the impacts of AI on Vietnamese citizens, the Organisation for Economic Co-operation and Development points out that customers are starting to interact with AI technology in daily life, such as Chatbot for commercial usage and AI for film recommendation via Youtube and Netflix (OECD.ai 2020).

Hence, Vietnam as a research setting reflects the context of (1) freedom of religion in civic practices but limited in political practices, (2) shared religious beliefs between parents and children, (3) relatively high proportion of internet users, and (4) a developing country with growing exposure to artificial intelligence adoption in education. The Vietnamese context’s features allow researchers to investigate technological adoption and readiness without worrying about religious constraints. Moreover, this research setting allows future scholars to externally validate the research and conduct the comparative review.

3.2. Study Design and Data Collection

This researcher employs semi-structured interviews to generate insights on Vietnamese Christian and non-Christian people’s readiness and acceptance toward AI innovation in religious education and practices. The in-depth interviews ensure rich and detailed information on the experiences and perceptions of interviewees (Oppong et al. 2020). This method also allows researchers to investigate interviewees, attitudes, expectations, and concerns toward the implementation of AI innovation in religious education and practices (Wright and Headley 2021; Klappe et al. 2020). The research separates the interviewees into six distinct groups, depending on their religious orientations and ages. This categorization allows the researchers to compare and evaluate the moderating effect of age and religious orientation in the Unified Theory of Acceptance and Use of Technology. To identify the sample size, the researchers follow the rule of saturating data, which is achieved when no new information is derived from the new interviewees (Saunders et al. 2018). To ensure the reliability and validity of our coding and interpretation, the researchers employ member checking. This method allows the researchers to interact again with participants and ensure the researchers’ interpretation correctly represents the participants’ culture, enhancing the credibility and validation of the study (Matthes et al. 2017).

The researchers carried out the semi-structured interviews via Zoom from November 2020 to January 2021. Before the interview, the researchers collected the key sociodemographic characteristics of the participants, including age, gender, education, religious
orientation, professional information, and their engagement with Christianity and technology in daily life. The initial interview allows the researchers to screen out unfit participants for the scope of research, such as participants born before 1965. The key sociodemographic characteristics of participants are summarized in Table 1 in the Results section.

<table>
<thead>
<tr>
<th>Sociodemographic Characteristics</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>17 (53)</td>
</tr>
<tr>
<td>Female</td>
<td>15 (47)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td>Generation X</td>
<td>8 (25)</td>
</tr>
<tr>
<td>Generation Y</td>
<td>15 (47)</td>
</tr>
<tr>
<td>Generation Z</td>
<td>9 (28)</td>
</tr>
<tr>
<td>Educational attainment</td>
<td></td>
</tr>
<tr>
<td>No formal education</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Less than a high school diploma</td>
<td>6 (19)</td>
</tr>
<tr>
<td>High school diploma</td>
<td>8 (25)</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>17 (53)</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>1 (03)</td>
</tr>
<tr>
<td>Working industries (multiple answers)</td>
<td></td>
</tr>
<tr>
<td>Religion-related industry</td>
<td>5 (14)</td>
</tr>
<tr>
<td>Technology-related industry</td>
<td>6 (18)</td>
</tr>
<tr>
<td>Education-related industry</td>
<td>10 (29)</td>
</tr>
<tr>
<td>Others</td>
<td>14 (40)</td>
</tr>
<tr>
<td>Religious orientation</td>
<td></td>
</tr>
<tr>
<td>Christianity</td>
<td>17 (53)</td>
</tr>
<tr>
<td>Atheism</td>
<td>9 (28)</td>
</tr>
<tr>
<td>Other religions</td>
<td>6 (19)</td>
</tr>
<tr>
<td>The number of years engaged with Christianity</td>
<td></td>
</tr>
<tr>
<td>30+ years</td>
<td>11 (61)</td>
</tr>
<tr>
<td>21–30 years</td>
<td>3 (17)</td>
</tr>
<tr>
<td>11–20 years</td>
<td>3 (17)</td>
</tr>
<tr>
<td>1–10 years</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Less than a year</td>
<td>1 (5)</td>
</tr>
<tr>
<td>The frequency of internet usage</td>
<td></td>
</tr>
<tr>
<td>Daily</td>
<td>28 (87)</td>
</tr>
<tr>
<td>1–6 times a week</td>
<td>3 (10)</td>
</tr>
<tr>
<td>Less than once a week</td>
<td>1 (3)</td>
</tr>
<tr>
<td>Never</td>
<td>0 (0)</td>
</tr>
<tr>
<td>The exposure level to artificial intelligence</td>
<td></td>
</tr>
<tr>
<td>Experts in fields (AI developers, AI researchers)</td>
<td>2 (6)</td>
</tr>
<tr>
<td>Recognize AI applications and engage with AI daily</td>
<td>6 (19)</td>
</tr>
<tr>
<td>Engage with AI daily, but do not recognize the AI applications</td>
<td>16 (50)</td>
</tr>
<tr>
<td>Never heard of the AI concept</td>
<td>8 (25)</td>
</tr>
</tbody>
</table>

The researchers will then ask whether the respondents understand the concept of AI clearly and how this technology can impact education and religious practices. This step ensures the participants have a comprehensive and correct understanding of the AI’s application, preventing response bias due to misunderstanding of the concept. The core interview questions were based on UTAUT constructs, specifically, Performance Expectation (PE), Effort Expectation (EF), Social Influence (SI), and Facilitating Condition (FC). The interview was recorded by both audio and written documents, ensuring the validity of responses. We also kept track of the similarity of answers on the same questions by different participants to strengthen the validity (Oppong et al. 2020; Klappe et al. 2020).

3.3. Thematic Analysis Process

The research follows a thematic analysis approach, developed by (Braun and Clarke 2006), to analyze the collected data. This approach allows “identifying, analyzing, and reporting patterns (themes) within the data” and “rigorous thematic approach can produce an insightful analysis that answers particular research questions.” Previous research has employed this method to generate theories and trends from interview data in education, business, and religious discipline (Riegel and Delling 2019; Evans 2013; Jones et al. 2011).
Firstly, the researchers familiarize themselves with the transcripts by reading and listening to the interview repeatedly. Secondly, the researchers develop the initial codes after recognizing the meaningful trends and patterns. Thirdly, as the coding process continues, a similar group of codes is highlighted and sorted. If there are additional themes, the researchers will sort them into categories based on the additional codes that were related and linked to the previous one. More specifically, the researchers employ axial coding, where all the clusters of codes relate to the UTAUT constructs. For example, the initial code “internet accessibility” from the interviewee’s answers will be recoded into the UTAUT “facilitating conditions” construct (Oppong et al. 2020; Klappe et al. 2020). The process of defining and refining themes and their subthemes allows the researchers to generalize the insightful theories from data in a concise and punchy manner (Oppong et al. 2020). Finally, the research sorts these themes and subthemes into a matrix table for comparing the results between different age groups and religious orientations.

To visualize the textual data, the research follows the procedure suggested by Klappe et al. (2020). If multiple comments portray the same construct, we will select one or two of these comments from the data-poor to represent the UTAUT’s constructs (Figure 1 in the Results section).

**Figure 1.** The theoretical model developed based on the coded data, adapted from the Unified Theory of Acceptance and Use of Technology (UTAUT) model.
4. Data Presentation and Analysis

4.1. Demographics of the Interview Participants

The research reached data saturation after 32 participants; hence, we decided not to hold any further interviews. All 32 interviews were conducted via Zoom and Messenger, and the median duration of an interview was 22 (15–35) minutes. Table 1 summarizes the key sociodemographic characteristics:

According to this table, the religion-related industry includes professional workers in the church, namely, one priest and two music directors or organists. There are two research scholars, one specializes in Vietnamese culture, and another specializes in religious studies. Technology-related industry includes respondents, namely, product manager at the engineering company Bosch, a game developer, two website developers, and two AI specialists. Respondents who work in the educational industry include lecturers at universities, teachers from primary to high schools, academic researchers, and curriculum developers. Examples of other professions are film director, writer, biochemistry scientist. Although the professional information is not a criterion for recruiting participants, the diversity of professionals gives valuable insight into how they may utilize the AIED applications. Regarding religious orientation, other religions are mainly Đạo Mẫu (the worship of mother goddesses), Cao Dai, and Buddhism.

Based on the provided information, there are some notices of potential bias in the responses regarding the Vietnamese majority’s representation. In this research, most participants engage with internet activity daily (87%), higher than the average internet user rate in Vietnam at 70%, making the overall response bias toward higher technological readiness. Moreover, 75% of the participants, encompassing all Gen X respondents, do not recognize their usage of AI and do not understand this concept thoughtfully. Since all Gen X respondents had never heard of the AI concept, the researchers have included short training and explanation of AI concepts to the participants. However, their lack of knowledge has given various comments on technology in education as a whole rather than specifically to AI. Regardless, the researchers still merit these comments and formulate them into AI context in the results and discussion sessions. The in-depth exploration of these biases will be discussed further in the Discussion section.

4.2. Motivations to Participate in Religious Education

All Gen Z respondents believe they have no motivation to study Christianity. Their comments are related to (1) the bore of religious studies and (2) the lack of practicality in Christian study. However, participants in Generation Y and X show a different pattern. They are eager to learn about religious education for three primary purposes: (1) marriage (distinctively for Christian education), (2) business activities, (3) cultural studies and research. Regarding marriage, according to Vietnamese-Christian tradition, a non-Christian person must conduct marital conversion (Nguyen 2017). Although this practice has been waived as Vietnam becomes a secular state, many religious families still prefer to follow this tradition. Respondents whose occupations are business development and marketing accumulate religious knowledge and study religious behavior to develop an effective campaign for religious communities. Finally, respondents who worked in education also need religious knowledge for cultural studies, historical studies, policymaking, and comparative religious studies. These reasons are only emerging in respondents with working experience and at the age of marriage; hence, it is understandable why Gen Z respondents do not think about these reasons. Surprisingly, only one respondent mentions studying religion because of spiritual value and emotional safety. Hence, for non-Christian Vietnam, learning Christianity and religion are shifting from spiritual values into more material and financial values.

For Christian respondents, the needs for religious studies are mandatory. The level of Christian education is directly related to the services that can benefit from the Church. For example, the respondents who reside in ecclesiastical provinces such as Nam Dinh and Vung Tau state that one must pass a certain educational level to start to confess one’s
sin or learn marriage theology. Christian parents also hope AI can fasten the learning process and enhance their children’s engagement in theological education. Some Christian respondents also demand AI to specialize their education pathway, making it easier for them to become priests. These motivations are prevalent across different generations among Christian respondents. Hence, this evidence shows Christian respondents still firmly hold spiritual values rather than shifting into material and financial values like the non-Christian respondents.

4.3. The Results of Each UTAUT Construct on Reasons for the Readiness and Acceptance of AIED across Generations

Based on the discussion about the facilitators and barriers taken from respondents’ quotes, this section is devoted to conceptualizing and adopting the UTAUT model into the Vietnamese religious AIED context. The coded data suggest 24 sub-themes in total, depicted in Figure 1. The examples of essential quotes and comments in each UTAUT construct sub-theme will be taken from Figure 1. Each UTAUT construct will be discussed based on its sub-theme. In each sub-theme, the paper will analyze the similarities and the generality in consumption patterns among all groups of age and religious orientations. After that, the paper will report on how these patterns may alter concerning different groups of age and religious orientation.

4.3.1. Performance Expectancy

AI conscience and life experiences is a core argument against AI application in religious education and religious practices from all Christian respondents. According to these respondents, their primary motivation to seek religious knowledge is to find spiritual guidance and inner peace rather than theological knowledge. They insist that since AI does not have its soul and life experiences, it cannot provide insightful spiritual and ethical advice on contextualized situations. According to the priest, an AI with its memory, its own emotion, and its personal norm still cannot replace the priest’s roles as a teacher and spiritual guidance. He argues that humans are the product of god, and god entitles humans to benefit from the sacrament. AI is just a product of humans; hence, it does not have the spiritual power to perform sacrament and provide theological teaching. In short, the questions of AI and personhood are the key barrier for religious AIED application to overcome.

Personalized adaptive learning can be used to tailor the theology information to different disciplines, such as theology content for someone who aims to become a priest, or art- and literature-based content for game developers and scriptwriters. Secondly, the personalized and adaptive elements can adjust the level of technicality and complexity in the language. For example, Gen Z and non-Christian respondents demand a more simplified version of language, but the Christians demand more technicality and more precise language. However, there is currently no pivot research on text simplification in Vietnam, suggesting potential growth and demand for Vietnamese text simplification in the future. Finally, the AI developers should develop films and interactive games that provide an interactive environment and a well-rounded religious representation to create a win-win situation.

Content quality also plays a crucial role in performance expectancy. According to the respondents, the elements that create high-quality content are being (1) up to date, (2) bias-free and critical, (3) able to answer practical questions, such as marriage and daily ethical dilemmas. In respondents’ comments, being up to date means the religious AIED application and chatbot are aware of the religion-related law and regulation updates or they can provide theological comments on contemporary social issues, such as robotics and LGBT rights. The respondents across all groups also advocate for bias-free and non-extreme content. Moreover, according to respondents, the element of answering practical questions provides them with tangible benefits; thus, this element gives them the motivation to use the religious AIED services. The non-Christian group defines practical answers as “solutions” for marriage, business, and marketing questions. On the other hand, the
Christian group believes that practical answers are associated with more emotional and spiritual values, such as the matter of how to live a peaceful life.

Avoiding embarrassment and promoting religious tolerance is an unexpected and novel sub-theme that the researchers encounter very often that does not appear and is not discussed intensively in the previous scholastic papers. According to previous research, religious tolerance is the ability to accept and respect others’ religious beliefs and the ability to resolve faith conflict situations in a peaceful and open-minded manner (Mulya and Aditomo 2019; Firdaus 2018). The topics, such as sex education, LGBT matters, criticism of Christianity’s belief from comparative perspectives, are taboo in the Christian religion and Vietnamese cultural context. Hence, many respondents demand a safe place for discussion without judgment. Moreover, respondents believe that by learning from people across the world and scholars, AI can receive well-rounded perspectives from comparative religious knowledge; hence, it can generate more bias-free and more tolerance content. On the other side, others argue that the lack of emotional and spiritual core makes AI merely a knowledge summarizer and it never becomes a good debater and interpreter of theological concepts.

Privacy Concern is a leading sub-theme that has been generated from respondents’ quotes across all age groups and religious orientations. Respondents believe that some of their data, for example, sexual orientation and their interest in unorthodox beliefs, may be sensitive in a theological and Vietnamese cultural context. If the data are breached and society is aware that a person is a member of the LGBT community, the person and their family will be stigmatized by their community and be expelled from the diocese. However, according to the priest, the expulsion from the diocese is “quite an extreme comment”; still, the priest agrees that there will be consequences from the church side.

Critical engagement is a sub-theme that causes heated debate from respondents. On a positive note, respondents think that AIED can positively promote critical thinking in digital learners compared to traditional learners. They propose that since AI can quickly summarize and generate theological information from multiple sources, it will give learners a more diverse perspective than when they only interact with their vicars. This benefit potentially reduces the likelihood of vicars manipulating the learners into extreme religiosity bias. Critical engagement can also provide the religious practitioners, such as priests and vicars, with more knowledge to engage with their flocks. However, some respondents hypothesize a contrasting scenario where learners are too reliant on AIED information and refuse to reflect on these concepts. As religious education is a journey of self-reflection and spiritual enrichment, AIED in religious education may direct students towards the wrong education path. Respondents’ suggestions are only using AIED in religious education as an assistant tool for the vicars. While AIED provides learners with the knowledge, the vicars can guide their spiritual and emotional reflection, creating a supportive relationship.

4.3.2. Effort Expectancy

User-friendly visualization and interaction is the most cited element for effort expectancy across all generations and religious orientations. For example, according to the Gen X respondents, they face aging eyes, making them unable to see the words clearly. This group suggests sound system installation for receiving information and gives comments to AI. Generation Y and Z demand more app customization that meets their extensive demands, such as light adjustment based on time and light intensity and the ability to customize the app’s screen. For the child audience, Gen Y respondents, who are parents, hope there will not be inappropriate advertisements on the user interface that lure children into consumerism and psychological extremes. Some of the listed inappropriate advertisements on the interface are advertisements of brutal comics and games with religious themes.

Language accessibility has been significantly emphasized by respondents as the most significant non-technological barrier. According to the respondents, there are not many AI applications in Vietnam written for Vietnamese citizens. For example, researchers have given examples for AIED to illustrate their performance, such as ELSA and Brainly; many
respondents stated that they cannot understand the content and the app’s instruction. This problem is significant for older generations because they do not have formal education in English. For younger generations, even respondents who study abroad in English-speaking countries still believe that English in a religious context is highly specialized.

The first impression on ease of usage is a sub-theme that is worth researchers’ and application developers’ attention. Some non-Christian respondents stress that they do not have a strong motivation to learn Christian theology at the beginning. Hence, they will not even bother to test a religious AIED if it costs them time at the initial stage. This element relates to the concept of both physical and virtual first impression. For example, all Gen Y and Gen Z respondents believe the app should be downloadable onto their smartphones and laptops rather than a separate product that creates more weight in their bags. Regarding virtual first impressions, four respondents mentioned the ease in the registration process. They prefer an automated login system based on their already established Facebook and Google accounts. Respondents also suggest allowing free exploration of trial services without the need to log in.

4.3.3. Social Influence

Credibility is the most commonly mentioned word by all of the respondents regarding social influence. For the non-Christian group, greater credibility comes from their peers’ sponsorship of a product. For Christian respondents, the most credible source are the local vicars, who have excellent knowledge of Christian theology and understand their flocks’ spiritual and emotional needs. If a religious AIED received a sponsor from the vicars, the church, and other Christian authorities, the Christian respondents would “wholeheartedly” support it. This pattern highlights the need to break down the theological and technical barriers between the vicars and the religious AIED applications.

Personal norms are the internal standards concerning a particular behavior rather than reflecting externally imposed rules (Kallgren et al. 2000). The element of personal norms is the self-concept and self-experience as feelings of a moral obligation to perform a particular behavior. Interestingly, most respondents refer to their intention to buy based on customer loyalty promotions and trial services from a business. If the religious AIED owners can tailor the products to meet customers’ religious and non-religious moral values, the respondents will more likely purchase the products. Moreover, regarding personal norms, most respondents, both Christian and non-Christian, do not oppose the application of AI in religious teaching. The barriers for not using AI are related to the Christian respondents’ feeling that the AI is not qualified enough for spiritual guidance ceremony.

Social inclusion is a repeatable theme suggested by Gen Z respondents across religious orientations. Gen Z are more willing to buy a certain product to keep up with their circle of friends. However, social inclusion is not a visible pattern in Generation Y and Gen Z. Respondents in these two groups acknowledged that social inclusion is a factor that influences their technological purchasing. However, they buy a product based on its practicality rather than to be included within a specific community or group of friends.

The intensity of regulation defines the level of pressure that the authorities, such as the church and the government, impose on respondents to consume a certain product. Many respondents cite Blue Zone as an example of their behavior under regulation. Blue Zone is a contact detection app that the Vietnamese government employs to combat the spread of Covid-19 by tracking potential Covid-19 carriers’ travel. According to the regulation, the government highly recommends installing the app, but many respondents do not follow the suggestion. The respondents believe that the media and governmental encouragement do not influence their choice unless the usage is mandatory.

4.3.4. Facilitating Conditions

Customer service quality contributes significantly to the usage of religious AIED services. Since there is no religious AIED application in Vietnam currently, customer service can provide extensive training and payment and technical support for respondents.
The customer service should be reachable using multiple communication means to fit with the communication styles of respondents. For example, Generation X respondents are not familiar with email writing or communication apps; hence, they demand traditional phone calls. Introvert respondents require fast-response email services or chatbot options. One side note is that the Q and A sections should involve visual step-by-step instructions or video recordings. However, other means of pre-recorded and pre-respond Q and A sections, such as text instruction, are not endorsed by the many respondents regardless of age and religious orientation. Respondents further suggest that app developers should create an AI application that can automatically sense computational errors and automatically fix the problems.

The complexity of technological requirements includes (1) minimum hardware requirements, (2) access to the Internet, and (3) compatibility with the users’ current technology. Regarding these elements, access to the Internet is not generally an issue for Vietnamese citizens. However, the hardware requirements pose a potential problem. Many respondents worry that a religious AIED app may be too heavy and too internet data-consuming to operate on their phones. Respondents also hope that the religious AIED should be designed similarly to how respondents normally interact with their familiar application. For example, a Gen Z respondent imagines that a religious AIED app should have a design similar to that of Khan Academy with a specialized educational path for each learner.

Affordability and payment method involves how willing and able a customer would be to pay for religious AIED apps and how the mode of payment may influence their intention to adopt and use religious AIED. The researchers acknowledge that Price Value is a separate construct in the Unified Theory of Acceptance and Use of Technology Extension Model 2 (Ain et al. 2016); however, it will be categorized for this research as elements of facilitating conditions due to its similarity in nature. Nearly all respondents demand a free religious AIED app, which reflects the culture of non-paid apps in Vietnam. This can be a challenge for potential app developers and investors since respondents do not like to pay for religious AIED apps or watch advertising. Respondents also report that they are not familiar with fintech services, such as Google Pay, VISA payment, and PayPal payment. For example, nearly one-third of respondents say that they do not use online banking services. The lack of exposure to fintech services makes it difficult for religious AIED app developers to charge these respondents. It can potentially create a technical barrier for potential customers who would be unable to use religious AIED apps.

4.3.5. Religious Orientations

The impact of religiosity on the Unified Theory of Acceptance and Use of Technology has been explored by Rami (2020) in the Islamic context; however, beyond this research, the role variable is still under exploration. Rami (2020) highlights the role of authority, such as the clerics, and how Islamic law might prevent the acceptance and adoption of new technology. Moreover, Rami’s (2020) evidence and case studies, e.g., Saudi Arabia’s ban on technology on religious grounds, are focused on countries with religious authority, which can impose mandatory law based on the governmental officers’ interests. To enrich the literature, this research pays close attention to the impacts of religious orientation in a fairly secular country and in a Christianity context. This study observes that religious orientation moderates the relationship between performance expectancy and social influence on behavioral intention. However, according to the coded data, there is no significant difference between Christian and non-Christian groups regarding facilitating conditions and effort expectancy.

The moderating roles of religious orientation stem from three sub-elements: (1) spiritual values, (2) religious commitment, and (3) motivation. Spiritual values set up different needs between Christian and non-Christian respondents on product performance expectations. For Christian respondents, conscience and experience are requirements for them to trust the chatbox and conduct religious practices virtually. However, for non-Christian respondents, this requirement is not a compulsory element for a religious AIED app. Reli-
gious commitment is defined as the interaction between people’s spiritual consciousness and religious participation (Davidson and Knudsen 1977). As mentioned by one of the respondents, his Church directly prevents respondents from using AI for Sacraments due to Christian law’s two intrinsic aspects: a “formal” structure of audible words (with visible gestures) and a “material” factor organized by the suitable form. This is different for Buddhism because some Buddhist respondents used to ask the Buddhist priests to conduct virtual and distant ceremonies. Moreover, according to our observations, the level of religiosity also impacts how a person is willing to adopt a critical view of their religion and how open they are to new changes. For instance, Christian respondents who do not work in the religious industry and non-Christians are more open to hypothetical situations where AI replaces priests and vicars. On the other hand, some Christian respondents refuse to enter this hypothetical situation because it is against the Church’s common practices and values. Finally, the in-depth data analysis for motivation factors has been mentioned in the previous section to set up the context and stage for UTAUT construct analysis (please see Section 4.2 Motivations to participate in religious education).

4.3.6. Age

According to our coded data, age can moderate all the relationships within the UTAUT model because each group has its own (1) technological consumption behaviors and (2) context of internal and external pressures. This research agrees with the previous study on the finding that age moderates all four factors related to the UTAUT model. Furthermore, it gives new insight into the specific religious AIED context.

In our coded data, technological consumption behaviors refer to how a general group of people act and interact with technology. Regarding this first sub-construct, our investigation of age as a moderator in the religious AIED context sees a different pattern from previous scholarly papers in other tech-related fields. For example, Calvo-Porral and Pesqueira-Sanchez (2019) find that Generation X is driven by information search and utilitarian purposes. On the other hand, Generation Y typically engages with technologies for hedonic and entertainment purposes. Roblek et al.’s (2019) data indicates that functional value, fun value, and value for money play a crucial role in Gen Z’s technological adoption. However, the authors of this investigation observe that Gen Y is mostly driven by functional significance rather than hedonistic and entertainment purposes. Gen Z follows the trend and demands group inclusiveness rather than the functional value of a product.

Contextualizing external and internal pressure is also an essential sub-theme that deserves attention. In our coded data, external pressure includes how different social and external influences may exert different levels of pressure unique to each group. An example of external pressure is that Gen Y and Gen X respondents bear a responsibility to earn income and make a living for themselves. Hence, they value flexibility and convenience as factors of effort expectancy. Regarding Gen Z, their pressure comes from club inclusion and students’ responsibility. They demand AIED apps. Internal pressure concentrates on personal customization features, such as adding wallpapers or social matching features, to their religious or psychological barriers to adopting new technology, such as common age-related eye problems and hearing problems in Gen X respondents. Because each age group has different pressures that prevent them from adopting religious AIED applications, the intensity of the relationship between all constructs within UTAUT is also different.

5. Discussion

5.1. The Factors Impacting the Acceptance of the Religious AIED Application

According to our coded data, most respondents underestimate the benefits of the religious AIED application; however, they accept the idea of employing AI in religious teaching. The non-acceptance responses only came from the Christian respondents, especially church staff. The limiting factors for the respondents to accept the religious AIED application can be seen mainly in the Performance Expectancy construct, concentrating
around the concept of personhood. The reasons to refuse religious AIED applications are
(1) the questions of the spiritual capacity of AI and (2) the teaching of Christian theology.

Regarding the claims about the spiritual capacity of AI, during the initial analysis, the
researchers believe that the refusal comes from the lack of knowledge about the potential
benefits of AI. For example, as cited in the literature review session, scholars see the
evidence for acceptance of religious AIED application and the practical benefits of AIED in
enriching learners’ religious knowledge in the Islamic context (Syarif 2020; Alemi et al.
2020). However, after re-designing the interview framework and continuously mentioning
the merits of AIED on religious education, the limiting factors for acceptance still have
not changed. As stated in the data analytic session, respondents seek religious learning to
develop a spiritual and emotional comfort rather than absorbing new knowledge about
their religions. The approach to measuring AI’s educational value by concentrating on
testing results and theological knowledge in precedent research is not completeness. Hence,
this paper suggests that the spiritual capacity goes beyond the concept of delivering
theological knowledge.

The teaching of Christian theology is also a limiting factor for Christians to adopt
the religious AIED application. The most cited reasons are the Sacraments’ nature in two
intrinsic aspects: a “formal” structure and the “material”. To ensure the acceptance of AI in
Christianity in Vietnam, there is a need to re-interpret the Sacrament’s two intrinsic aspects
and AI personhood. Scholastic attempts to re-interpret and defend technology transform-
ing theology, virtual church, and sacraments and the application of Virtual Church and
religious AIED applications are currently available (Malapi-Nelson 2019; Savin-Baden and
Reader 2018). There are two possible explanations for why the Vietnamese vicars and
priests have not heard of this re-interpretation. Firstly, these materials are in English. This
language barrier may prevent Vietnamese Christian followers and practitioners from learn-
ing and developing critical thinking about accepting religious AIED applications. Secondly,
this re-interpretation is considered unorthodox beliefs; thus, they are not mentioned in
the learning curriculum. Two potential solutions to improve the acceptance of religious
AIED applications to the Christian community are facilitating fruitful debate or creating
workshop seminars with vicars and priests about the re-interpretation of the nature of
Sacraments (Singler 2018; Reardon 1997).

5.2. The Factors Impacting the Readiness to Adopt Religious AIED Application

The concept of readiness in this paper encompasses both (1) infrastructure readiness
and (2) personal technical skills readiness. Infrastructure readiness is the state and ability
of infrastructure to meet operational requirements of religious AIED applications, such
as access to the Internet and smartphone availability. Personal technical skills readiness
addresses whether a person can learn and employ religious AIED applications, such as the
ability to utilize fintech for payment. According to the coded data, there is currently no
problem related to infrastructure readiness. There is only one concern that the respondents’
smartphones do not have enough computational capacity and internet data transmission
rate to employ the application smoothly. This paper does not have enough data to answer
this question; hence, the researchers suggest subsequent research to analyze whether
the majority of Vietnamese people’s smartphones can meet the hardware and software
requirements of religious AIED applications.

While Gen Z faces no personal technical skills problems to take advantage of religious
AIED application, other generations demand a variety of customer service and training
support. This technological consumption behavior is similar to preceding research in the
literature review session. More precisely, the technology gap concentrates on the lack of
skills to register and perform digital banking services and the language barrier—two new
factors that have not been seen in previous research on AI application in religious education.
Besides national policy-related suggestions, the solutions suggested by respondents are
hands-on support from the religious AIED’s business and the ability to customize the
application based on personal needs.
Interestingly, some Gen Y respondents also have their children, Generation Alpha who born after 2012 (Dimock 2019). Although Generation Alpha are not the target respondents of this research, the paper still reports some insight into the personal technical skills’ problems faced by Generation Alpha, such as the lack of technical skills and language to understand Christian theological concepts. As religious education is mandatory for Christian children in Vietnam, subsequent research on generation alpha’s needs and their technological consumption behavior can also provide practical benefits to the connection and acceptance of AI and religious belief.

5.3. Recommendations Improve the Acceptance, Readiness, and Adoption on AI Involvement in Religious Education

Based on the data analysis sessions, the recommendations improve the acceptance, readiness, and adoption of AI Involvement in Religious Education are (1) receiving sponsorship from the church’s authority, (2) allowing a trial service and customization usage, (3) meeting the needs of education for digital literacy and language literacy. Points (2) and (3) have been addressed by multiple scholastic articles and policy notes in both the international and Vietnamese context (Tran et al. 2020). This research wants to concentrate on recommendation (1). According to the respondents and the priests, receiving sponsorship from the church’s authority is the most important factor for them to accept religious AIED applications. The channel to receive the church authority’s support are publications in respected religious journals or acceptance from the Catholic Bishops’ Conference of Vietnam. Between the two options, publications in respected religious journals are a more easily achievable option, but they do not exert as much positivity toward the Christian followers compared to the second option. The coded data also show more respondents believe that the local vicars have a higher influence on their consumption behavior than the Catholic Bishops’ Conference of Vietnam.

Although many Christian respondents suggest the religious AIED developers seek recognition from the Christian authorizes, this strategy might be a double-edged sword. Since the political tension between Christianity and the Communist party are still intense (Liên 2013), Christian authorities may take advantage of the educational apps as political tools to manipulate the followers. This manipulation goes against the core values of education toward peaceful religious values. The Communist party may also blacklist the AIED apps and create future AI application barriers in religious education. Hence, this paper requests future developers to be critical and empirical in decision making.

6. Conclusions

The research figured out the factors that potentially affect the majority of respondents’ acceptance, readiness, and adoption of AI involvement in religious education by applying the UTAUT model. The study results indicate wide acceptance among almost all interviewees, except for those who have absolute and abiding religious faith. Additionally, interviewees belonging to the Gen Z group are practically ready in terms of infrastructure and skills. In contrast, the Gen Y and Gen X interviewed groups face difficulties with technical skills such as the payment process. The adoption of AI applications in religious education, however, is hindered by their different motivations and the lack of concern for religious education. More precisely, while those for whom the acquisition of religious knowledge is mandatory, such as priests and deacons, refuse to use it because it is against the canon, atheists intrinsically have little interest in studying religion.

Recognizing patterns from interviewees’ responses, this research makes new contributions to existing investigations in religious education and AI. First, the study provides insights into the relationships between performance expectancy and behavioral intention, as well as between social influence and behavioral intention. Based on the current sample, religious orientation was recognized as playing a moderating role in these two relationships but it does not moderate the relationships of behavioral intention with effort expectancy and facilitating conditions. Second, the authors deliver the first step into understanding the adoption of AI for Christian education for developing a UTAUT model that contextualizes
it into religious AIED context so that future research can depend on it to conduct more in-depth quantitative research. Finally, while previous articles investigate the concepts of AI and religious education in countries favoring a specific religion, this paper explores those in a secular country.

Regarding practical contribution, the study findings offer useful suggestions for entrepreneurs in technology and potential religious AIED service providers. With the research results, entrepreneurs can identify the potential customers’ requirements and challenges so that they can adjust the characteristics of the products and services accordingly. The outcomes can also be used as part of market research, helping service providers become aware of the demand for religious AIED applications. The study consequently incentivizes technological innovations and serves as a guide for programmers, developers, and designers to launch the suitable system, reducing the risk of the trailer in the post-implementation. Additionally, the research also suggests that one of the strategies to gain endorsement from religious practitioners is to provide more information about re-interpretation of sacrament and personhood by translating from foreign materials; however, such actions might face political conflicts. Entrepreneurs must consult legal and political experts before seeking religious endorsement for their AI application.

There are some limitations in the research that should be noted. First, saturation as a method for determining the size sample has some drawbacks. For example, sample size insufficiency can threaten this study’s validity and generalizability (Vasileiou et al. 2018). Since there are 7 million Christian followers and 90 million Vietnamese citizens, a sample of 32 might not reflect the whole population. Future research needs a more significant sample. Secondly, this research only explores Christianity in the context of Vietnam. Each religion has different values and beliefs, leaving the acceptance of AI involvement to differ. Thus, future research can choose other religions in Vietnam or Christianity in other countries to study. Thirdly, adopting a qualitative method also means that this research can only propose theories and patterns. If contrasting ideas exist, the research does not have a data-driven response. Therefore, researchers in the future can get materials from this paper to undertake the quantitative analysis. Finally, variables in this research are limited by the UTAUT model, which may oversee many other variables. As a result, it is suggested that future research expand to different variables, such as monetary value and habit, to get a thorough result.

Author Contributions: Conceptualization, K.T.; methodology, K.T.; validation, K.T., T.N.; formal analysis K.T., T.N.; investigation, K.T., T.N.; data curation, T.N.; writing—original draft preparation, K.T., T.N.; writing—review and editing, T.N.; visualization, T.N.; supervision, K.T.; project administration, K.T., T.N. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Ethical review and approval were waived for this study, due to the recorded information cannot readily identify the subject and any disclosure of responses outside of the research would not reasonably place the subject at risk.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

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